

Control Measure for In-Use Stationary Diesel Agricultural Engines

What is an in-use stationary diesel agricultural engine?

An in-use stationary diesel agricultural engine (also referred to as in-use ag. engine) is a diesel-fueled engine located at a fixed site for the purposes of growing crops or raising fowl or other animals. An estimated 9,000 to 11,000 of these engines are currently operated in California, primarily in the Central Valley. Most are used to power irrigation pumps. They may also be used to power agricultural wind machines and to generate power for other agricultural purposes during electrical power failures or in remote locations.

What are the emissions and health impacts associated with in-use ag. engines?

California's in-use ag. engines emit diesel particulate matter (PM) and oxides of nitrogen (NO_x) that cause adverse health effects for Californians. Stationary irrigation pump engines, alone, emit an estimated 480 tons of diesel PM and 10,000 tons of NO_x annually. Most of these emissions occur during the summer growing season.

The California Air Resources Board (ARB) identified diesel PM as a toxic air contaminant (TAC) in 1998. Exposure to diesel PM may result in both cancer and noncancer health effects. Noncancer health effects may include eye and lung irritation, allergic reactions in the lungs, asthma exacerbation, blood toxicity, immune system dysfunction, and developmental disorders. NO_x, a contributor to ozone or smog, has also been shown to have adverse health effects in humans including respiratory irritation, suppression of the immune system, and asthma exacerbation.

What is the status of ARB's control measure for in-use ag. engines?

At a public hearing on November 16, 2006, the California Air Resources Board approved in-use ag. engine emission and other requirements as part of the amended Airborne Toxic Control Measure for Stationary Compression Ignition Engines (title 17, California Code of Regulations, sections 93115.1 through 93115.15) (Stationary Diesel Engine ATCM). The amendments became effective on October 18, 2007, and the Final Regulation is available at <http://www.arb.ca.gov/diesel/ag/inuseag.htm>.

How are in-use portable ag. engines regulated?

Consistent with State law, portable agricultural engines owned or operated by the agricultural source owner/operator are subject to the Stationary Diesel Engine ATCM, unless the engine is owned by a rental/leasing company. Portable engines owned by rental/leasing companies are subject to the Airborne Toxic Control Measure for Diesel Particulate Matter From Portable Engines (Portable Diesel Engine ATCM). Contact your local air district or ARB for further information.

Are there other control measures affecting in-use ag. engines?

Yes, the San Joaquin Valley (Rule 4702) and South Coast (Rule 1110.2) air districts limit NO_x, volatile organic compound (VOC), and carbon monoxide (CO) emissions from in-use ag. and other engines. In the future, other local air districts may adopt control requirements for in-use ag. engines.

What does the ARB control measure require?

The control measure establishes emission limits for greater than 50 hp in-use ag. engines and registration requirements for greater than 50 hp new and in-use ag. engines. The in-use ag. engine emission limits require uncontrolled (primarily pre-1996) engines not to exceed Tier 3 or Tier 4 new Off-Road Compression Ignition Engine Certification Standards for PM by the 2011-2012 timeframe. Tier 1 and Tier 2 engines can not exceed Tier 4 certification standards for PM by the 2015-2016 timeframe, or 12 years after initial installation, whichever is later. Due to residual cancer risk, some Tier 3-compliant engines located within one-quarter mile of residential areas, schools, or hospitals may be subject to additional local air district AB 2588 "Hot Spots" Program requirements. No residual risk issues are anticipated for Tier 4-compliant engines because of their very low emission rates. In addition, the control measure contains ag. engine emission limits for non-PM air pollutants, such as NOx,

The control measure also requires affected owners or operators to submit registration information on each ag. engine to local air districts by March 1, 2008, and to pay fees for engine registration and other local air district implementation and enforcement activities. Agricultural wind machines are exempt from the ATCM. Ag. emergency standby generator sets and remotely-located ag. engines are exempt from emission limits, but must be registered. Owners or operators of greater than 50 horsepower in-use ag. engines subject to San Joaquin Valley or South Coast air district NOx rules are also expected to comply with Stationary Diesel Engine ATCM PM emission limits.

Who is affected by the control measure?

California farmers, ranchers, and universities or other institutions with programs operating diesel agricultural engines will be affected by the control measure. In addition, the control measure could have indirect impacts on electric power providers, fuel suppliers, and engine manufacturers, dealers, and rental agencies.

What are potential compliance options for the control measure?

Potential compliance options for the control measure's emission limits include: engine replacement with an electric motor, spark-ignited engine, or compliant diesel engine; engine retrofit with add-on control devices; the use of natural gas, propane, or other alternative fuels; and the use of alternative diesel fuels. However, engine replacement with an electric motor or new, cleaner diesel engine is expected to be the primary means of compliance for technical, financial, and emission reduction reasons. Contact your local air district to discuss the most appropriate and cost-effective compliance option for your in-use ag. engine or engines.

Is funding available to meet the emission requirements in the control measure?

Some compliance options may be eligible for incentive funds or special rates. Contact the program provider and your local air district for information about eligibility and application submittal as soon as possible. The following links provide information on specific programs:

Environmental Quality Incentives Program at <http://www.ca.nrcs.usda.gov/programs/eqip>.
Telephone: (530) 792-5653.

Carl Moyer Program or Agricultural Assistance Program at
<http://www.arb.ca.gov/msprog/moyer/guidelines/current.htm> and <http://www.arb.ca.gov/msprog/moyer/contacts.htm>.
Telephone your local air district.

For more information about this control measure: A copy of the Stationary Diesel Engine ATCM (see Tables 6 and 7 for a summary of the emission limits for in-use stationary diesel agricultural engines) and additional information are available at <http://www.arb.ca.gov/diesel/ag/inuseag.htm>. Please join the electronic list serve at <http://www.arb.ca.gov/listserv/inuseag.htm>. You may also contact Jon Manji at (916) 327-1507, jmanji@arb.ca.gov, or Ron Walter at (916) 327-5623, or rwalter@arb.ca.gov.